

REMARKS

Claims 1-5 and 7-22 are now presented in the application. The recent interview so courteously granted the undersigned by Examiners Webb and Lundgren is hereby noted with appreciation. As discussed during the interview, claim 1 has been amended to include recitations supported by original claim 6, but rewritten somewhat for purposes of clarification. In addition, as discussed at the interview, claim 1 has been amended to clarify that the water-insoluble polymer is a component suppressing an allergen. Accordingly, claim 6 has been cancelled. The amendments to the claims do not introduce any new matter and do not raise any new issues.

As mentioned at the interview, the rejection of Claims 1-5, 7-15 and 20-22 under 35 USC 102(b) as being anticipated by GB 2058820 to Johnson has been overcome by the amendment to claim 1, that includes recitations supported by claim 6. Claim 6 was not subject to this rejection.

Claims 1-6, 8-19, 21 and 22 were rejected under 35 USC 103(a) as being obvious over US Patent application publication 2002/0182184 to Pearl et al. (hereinafter also referred to as “Pearl”) in view of GB 2058820 to Johnson. Claims 7 and 20 were also rejected under 35 USC 103(a) as being obvious over US Patent application publication 2002/0182184 to Pearl et al. in view of GB 2058820 to Johnson. The cited references do not render obvious the claims as now presented.

The allergen suppressor of the present invention as recited in amended claim 1 contains a hydrophilic polymer and a component suppressing an allergen and at least two species of the hydrophilic polymers having different structures.

Use of a water-insoluble polymer compound as a component suppressing an allergen, can sustain an effect of suppressing an allergen even when being applied to a product often coming into contact with water through cleaning or the like in the daily life of a fiber. However, it is difficult to achieve the suppression of an allergen without water when using such a water-insoluble polymer compound. The allergen suppressor of the present invention contains at least two species of hydrophilic polymers having different structures. The

hydrophilic polymer can form a reaction field capable of causing an interaction with an allergen by collecting water molecules from the air. The reaction field capable of causing an interaction with the allergen refers to a reaction field for exerting some chemical interaction in order to suppress the antigenicity of a site (epitope) where the allergen develops the antigenicity, and it refers to a reaction field where spontaneous proceeding of a chemical reaction can take place, for example by stabilizing an electrochemical transition state such as an ionized state to lower the level of an energy barrier in a transition state of a chemical reaction. Generally, in order to lower the level of an energy barrier in a transition state which has to be overcome for initiating a chemical reaction, water in liquid form is required, but in the allergen suppressor of the present invention, it is not necessary to carry out the operations of sprinkling water or the like because such a reaction field can be formed by collecting water from the air. This performance can be shown more effectively by using at least two species of the hydrophilic polymers having different structures. Please see Examples 5, 6, 7, 12 of the specification.

The cited references do not render obvious the present invention. Pearl merely discloses an enzymatic cleaning composition. Pearl never discloses a composition that contains a water-insoluble polymer compound as a component suppressing an allergen. In addition, Pearl never discloses using such a component suppressing an allergen together with at least two species of hydrophilic polymers having different structures.

Pearl suggests an enzymatic cleaning composition that comprises an enzyme and/or a bacterial spore substance capable of producing enzymes, a wetting agent, an odor-encapsulating agent, a neutralizing agent, a surfactant-encapsulating agent, an embrittling agent and water. The embrittling agent can be an acrylic copolymer.

The mechanism of Pearl for removing allergens is digestion of allergens (protein) by enzymes. This digestion occurs in a water solution. Thus the enzymatic cleaning composition of Pearl necessarily includes "water". Please see Examples of Pearl. In particular, the water based compositions were first produced. Old carpet was then treated with 4 ounces of the composition and allowed to air dry for 8 hours followed by a thorough vacuuming. The effect

of the enzymatic cleaning composition of Pearl is not carried out under dried conditions. Pearl does not disclose or even remotely suggest a water-insoluble polymer compound that suppresses allergen and further fails to disclose employing a water-insoluble polymer of at least one aromatic hydroxyl compound (claim 21).

As described above, the mechanism of the present invention for suppressing allergens is quite different from that of Pearl. As mentioned above, the present invention does not require adding liquid water. The reaction field capable of causing an interaction with the allergen is formed by the hydrophilic polymer. Thus once the allergen of the present invention is treated (e.g.-the water-insoluble polymer compound), the suppressing effect continues even under normal room conditions, for example, in an atmosphere of not more than 50 g/m³ in absolute humidity. Along these lines, please see Examples and Table I of the present application. It is found that in the cloths made of allergen-suppression processed fiber prepared in Examples, the amount of the allergen, which had been at a high level, immediately after preparation of the sample, was reduced by a large and significant amount after being left standing for 15 hours in a thermo-hygrostat. Furthermore, the suppressing effect according to the present invention can continue even when the component suppressing an allergen is applied to a product that often come into contact with water through cleaning or the like in the daily life of a fiber (please see page 10, lines 24-29 of the specification).

Johnson does not overcome the above discussed deficiencies of Pearl with respect to rendering unpatentable the present invention. Johnson merely discloses a polymer composition which can isolate mites from these critical nutrients (please see page 1, lines 45-50 of Johnson). The polymer composition of Johnson includes a hydrophobic polymer having a glass transition temperature less than about 20°C. However, it is only used to coat and bond mites to thereby immobilize them. It is not a component suppressing an allergen. Johnson never discloses a composition that contains a water insoluble polymer compound as a component suppressing an allergen.

As agreed upon during the interview, Johnson does not teach a combination of a hydrophilic polymer and water insoluble polymer. Johnson merely suggests hydrophobic

copolymers from hydrophilic monomers and hydrophobic monomers, not a separate hydrophilic polymer and a separate water insoluble polymer. Moreover, Johnson never discloses using such a component suppressing an allergen together with at least two species of hydrophilic polymers having different structures.

In addition, as pointed out at the interview, Johnson is not even properly combinable with Pearl since the polymers of Jonson are to provide a film that is flexible. Please see page 2, line 25. On the other hand, the polymers employed by Pearl are to act as embrittling agents, the opposite effect desired in Johnson.

Also, as mentioned during the interview, Johnson, if anything, actually leads away from the present invention, since Johnson states that “---the film itself should not absorb moisture and consequently aid in the support of the mite”. Please page 2. lines 30-31. This is contrary to what is desired according to the present invention.

With respect to claim 21 that recites that water-insoluble polymer compound is a polymer of at least one aromatic hydroxyl compound, it was discussed at the interview that the vinylpyridine and dimethylaminophenyl acrylate are not aromatic hydroxyl compounds. Please see the attachment that includes the structures of these compounds.

In addition, claims 8, 9 and 22 being directed to an allergen-suppression processed fiber are patentable for at least the additional reason that providing an allergen-suppression processed fiber would seemingly be contrary to the suggestions of Pearl. Pearl discloses that when fabric surfaces are treated with the compositions therein, the fabric surfaces are vacuumed to remove the dried composition. Please see column 4, lines 15-17 thereof.

In view of the above, consideration and allowance are respectfully solicited.

In the event the Examiner believes an interview might serve in any way to advance the prosecution of this application, the undersigned is available at the telephone number noted below.

Application No.: 10/585,305
Reply to Office Action dated July 7, 2009

Docket No.: 21581-00443-US

The Office is authorized to charge any necessary fees to Deposit Account No. 22-0185, under Order No. 21581-00443-US from which the undersigned is authorized to draw.

Dated: November 6, 2009

Respectfully submitted,

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